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Sequence Listing was accepted.

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Reviewer: Anne Corrigan

Timestamp: [year=2009; month=9; day=11; hr=10; min=5; sec=7; ms=510;]

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Application No: 10599098 Version No: 1.0

Input Set:

Output Set:

Started: 2009-08-27 18:48:42.755
Finished: 2009-08-27 18:48:44.430
Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 675 ms
Total Warnings: 8
Total Errors: 0
No. of SeqIDs Defined: 30
Actual SeqID Count: 30

Error code	Error Description
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W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (27)
W 213	Artificial or Unknown found in <213> in SEQ ID (29)
W 213	Artificial or Unknown found in <213> in SEQ ID (30)

SEQUENCE LISTING

<110> Health Protection Agency
Sutton, John Mark
Raven, Neil David Hammond

<120> Biological Indicator

<130> P26205WO-MRM

<140> 10599098

<141> 2009-08-27

<150> GB 0406427.5

<151> 2004-03-22

<160> 30

<170> PatentIn version 3.1

<210> 1

<211> 195

<212> PRT

<213> Sulfolobus solfataricus

<400> 1

Met Lys Ile Gly Ile Val Thr Gly Ile Pro Gly Val Gly Lys Thr Thr
1 5 10 15

Val Leu Ser Phe Ala Asp Lys Ile Leu Thr Glu Lys Gly Ile Ser His
20 25 30

Lys Ile Val Asn Tyr Gly Asp Tyr Met Leu Asn Thr Ala Leu Lys Glu
35 40 45

Gly Tyr Val Lys Ser Arg Asp Glu Ile Arg Lys Leu Gln Ile Glu Lys
50 55 60

Gln Arg Glu Leu Gln Ala Leu Ala Ala Arg Arg Ile Val Glu Asp Leu
65 70 75 80

Ser Leu Leu Gly Asp Glu Gly Ile Gly Leu Ile Asp Thr His Ala Val
85 90 95

Ile Arg Thr Pro Ala Gly Tyr Leu Pro Gly Leu Pro Arg His Val Ile
100 105 110

Glu Val Leu Ser Pro Lys Val Ile Phe Leu Leu Glu Ala Asp Pro Lys
115 120 125

Ile Ile Leu Glu Arg Gln Lys Arg Asp Ser Ser Arg Ala Arg Thr Asp
130 135 140

Tyr Ser Asp Thr Ala Val Ile Asn Glu Val Ile Gln Phe Ala Arg Tyr
145 150 155 160

Ser Ala Met Ala Ser Ala Val Leu Val Gly Ala Ser Val Lys Val Val
165 170 175

Val Asn Gln Glu Gly Asp Pro Ser Ile Ala Ala Ser Glu Ile Ile Asn
180 185 190

Ser Leu Met
195

<210> 2
<211> 194
<212> PRT
<213> Sulfolobus acidocaldarius

<400> 2

Met Lys Ile Gly Ile Val Thr Gly Ile Pro Gly Val Gly Lys Ser Thr
1 5 10 15

Val Leu Ala Lys Val Lys Glu Ile Leu Asp Asn Gln Gly Ile Asn Asn
20 25 30

Lys Ile Ile Asn Tyr Gly Asp Phe Met Leu Ala Thr Ala Leu Lys Leu
35 40 45

Gly Tyr Ala Lys Asp Arg Asp Glu Met Arg Lys Leu Ser Val Glu Lys
50 55 60

Gln Lys Lys Leu Gln Ile Asp Ala Ala Lys Gly Ile Ala Glu Glu Ala
65 70 75 80

Arg Ala Gly Gly Glu Gly Tyr Leu Phe Ile Asp Thr His Ala Val Ile
85 90 95

Arg Thr Pro Ser Gly Tyr Leu Pro Gly Leu Pro Ser Tyr Val Ile Thr
100 105 110

Glu Ile Asn Pro Ser Val Ile Phe Leu Leu Glu Ala Asp Pro Lys Ile
115 120 125

Ile Leu Ser Arg Gln Lys Arg Asp Thr Thr Arg Asn Arg Asn Asp Tyr
130 135 140

Ser Asp Glu Ser Val Ile Leu Glu Thr Ile Asn Phe Ala Arg Tyr Ala
145 150 155 160

Ala Thr Ala Ser Ala Val Leu Ala Gly Ser Thr Val Lys Val Ile Val
165 170 175

Asn Val Glu Gly Asp Pro Ser Ile Ala Ala Asn Glu Ile Ile Arg Ser
180 185 190

Met Lys

<210> 3
<211> 197
<212> PRT
<213> Sulfolobus tokodaii

<400> 3

Met Ser Lys Met Lys Ile Gly Ile Val Thr Gly Ile Pro Gly Val Gly
1 5 10 15

Lys Thr Thr Val Leu Ser Lys Val Lys Glu Ile Leu Glu Glu Lys Lys
20 25 30

Ile Asn Asn Lys Ile Val Asn Tyr Gly Asp Tyr Met Leu Met Thr Ala
35 40 45

Met Lys Leu Gly Tyr Val Asn Asn Arg Asp Glu Met Arg Lys Leu Pro
50 55 60

Val Glu Lys Gln Lys Gln Leu Gln Ile Glu Ala Ala Arg Gly Ile Ala
65 70 75 80

Asn Glu Ala Lys Glu Gly Gly Asp Gly Leu Leu Phe Ile Asp Thr His
85 90 95

Ala Val Ile Arg Thr Pro Ser Gly Tyr Leu Pro Gly Leu Pro Lys Tyr
100 105 110

Val Ile Glu Glu Ile Asn Pro Arg Val Ile Phe Leu Leu Glu Ala Asp
115 120 125

Pro Lys Val Ile Leu Asp Arg Gln Lys Arg Asp Thr Ser Arg Ser Arg
130 135 140

Ser Asp Tyr Ser Asp Glu Arg Ile Ile Ser Glu Thr Ile Asn Phe Ala
145 150 155 160

Arg Tyr Ala Ala Met Ala Ser Ala Val Leu Val Gly Ala Thr Val Lys
165 170 175

Ile Val Ile Asn Val Glu Gly Asp Pro Ala Val Ala Ala Asn Glu Ile
180 185 190

Ile Asn Ser Met Leu
195

<210> 4
<211> 196
<212> PRT
<213> Pyrococcus furiosus

<400> 4

Met Pro Phe Val Val Ile Ile Thr Gly Ile Pro Gly Val Gly Lys Ser
1 5 10 15

Thr Ile Thr Arg Leu Ala Leu Gln Arg Thr Lys Ala Lys Phe Arg Leu
20 25 30

Ile Asn Phe Gly Asp Leu Met Phe Glu Glu Ala Val Lys Ala Gly Leu
35 40 45

Val Lys His Arg Asp Glu Met Arg Lys Leu Pro Leu Lys Ile Gln Arg
50 55 60

Glu Leu Gln Met Lys Ala Ala Lys Lys Ile Thr Glu Met Ala Lys Glu
65 70 75 80

His Pro Ile Leu Val Asp Thr His Ala Thr Ile Lys Thr Pro His Gly
85 90 95

Tyr Met Leu Gly Leu Pro Tyr Glu Val Val Lys Thr Leu Asn Pro Asn
100 105 110

Phe Ile Val Ile Ile Glu Ala Thr Pro Ser Glu Ile Leu Gly Arg Arg
115 120 125

Leu Arg Asp Leu Lys Arg Asp Arg Asp Val Glu Thr Glu Glu Gln Ile
130 135 140

Gln Arg His Gln Asp Leu Asn Arg Ala Ala Ala Ile Ala Tyr Ala Met
145 150 155 160

His Ser Asn Ala Leu Ile Lys Ile Ile Glu Asn His Glu Asp Lys Gly
165 170 175

Leu Glu Glu Ala Val Asn Glu Leu Val Lys Ile Leu Asp Leu Ala Val
180 185 190

Asn Glu Tyr Ala
195

<210> 5
<211> 196
<212> PRT
<213> Pyrococcus horikoshii

<400> 5

Met Pro Phe Val Val Ile Ile Thr Gly Ile Pro Gly Val Gly Lys Ser
1 5 10 15

Thr Ile Thr Lys Leu Ala Leu Gln Arg Thr Arg Ala Lys Phe Lys Leu
20 25 30

Ile Asn Phe Gly Asp Leu Met Phe Glu Glu Ala Leu Lys Leu Lys Leu
35 40 45

Val Lys His Arg Asp Glu Met Arg Lys Leu Pro Leu Glu Val Gln Arg
50 55 60

Glu Leu Gln Met Asn Ala Ala Lys Lys Ile Ala Glu Met Ala Lys Asn
65 70 75 80

Tyr Pro Ile Leu Leu Asp Thr His Ala Thr Ile Lys Thr Pro His Gly
85 90 95

Tyr Leu Leu Gly Leu Pro Tyr Glu Val Ile Lys Ile Leu Asn Pro Asn
100 105 110

Phe Ile Val Ile Ile Glu Ala Thr Pro Ser Glu Ile Leu Gly Arg Arg
115 120 125

Leu Arg Asp Leu Lys Arg Asp Arg Asp Val Glu Thr Glu Glu Gln Ile
130 135 140

Gln Arg His Gln Asp Leu Asn Arg Ala Ala Ala Ile Thr Tyr Ala Met
145 150 155 160

His Ser Asn Ala Leu Ile Lys Ile Ile Glu Asn His Glu Asp Lys Gly
165 170 175

Leu Glu Glu Ala Val Asn Glu Leu Val Lys Ile Leu Asp Leu Ala Val
180 185 190

Lys Glu Tyr Ala
195

<210> 6
<211> 196
<212> PRT
<213> Pyrococcus abyssi

<400> 6

Met Ser Phe Val Val Ile Ile Thr Gly Ile Pro Gly Val Gly Lys Ser
1 5 10 15

Thr Ile Thr Arg Leu Ala Leu Gln Arg Thr Lys Ala Lys Phe Lys Leu
20 25 30

Ile Asn Phe Gly Asp Leu Met Phe Glu Glu Ala Val Lys Ala Gly Leu
35 40 45

Val Asn His Arg Asp Glu Met Arg Lys Leu Pro Leu Glu Ile Gln Arg
50 55 60

Asp Leu Gln Met Lys Val Ala Lys Lys Ile Ser Glu Met Ala Arg Gln
65 70 75 80

Gln Pro Ile Leu Leu Asp Thr His Ala Thr Ile Lys Thr Pro His Gly
85 90 95

Tyr Leu Leu Gly Leu Pro Tyr Glu Val Ile Lys Thr Leu Asn Pro Asn
100 105 110

Phe Ile Val Ile Ile Glu Ala Thr Pro Ser Glu Ile Leu Gly Arg Arg
115 120 125

Leu Arg Asp Leu Lys Arg Asp Arg Asp Val Glu Thr Glu Glu Gln Ile
130 135 140

Gln Arg His Gln Asp Leu Asn Arg Ala Ala Ala Ile Ala Tyr Ala Met
145 150 155 160

His Ser Asn Ala Leu Ile Lys Ile Ile Glu Asn His Glu Asp Lys Gly
165 170 175

Leu Glu Glu Ala Val Asn Glu Leu Val Glu Ile Leu Asp Leu Ala Val
180 185 190

Lys Glu Tyr Ala
195

<210> 7
<211> 192
<212> PRT
<213> Methanococcus thermolithotrophicus

<400> 7

Met Lys Asn Lys Leu Val Val Val Thr Gly Val Pro Gly Val Gly Gly
1 5 10 15

Thr Thr Ile Thr Gln Lys Ala Met Glu Lys Leu Ser Glu Glu Gly Ile
20 25 30

Asn Tyr Lys Met Val Asn Phe Gly Thr Val Met Phe Glu Val Ala Gln
35 40 45

Glu Glu Asn Leu Val Glu Asp Arg Asp Gln Met Arg Lys Leu Asp Pro
50 55 60

Asp Thr Gln Lys Arg Ile Gln Lys Leu Ala Gly Arg Lys Ile Ala Glu
65 70 75 80

Met Val Lys Glu Ser Pro Val Val Val Asp Thr His Ser Thr Ile Lys
85 90 95

Thr Pro Lys Gly Tyr Leu Pro Gly Leu Pro Val Trp Val Leu Asn Glu
100 105 110

Leu Asn Pro Asp Ile Ile Ile Val Val Glu Thr Ser Gly Asp Glu Ile
115 120 125

Leu Ile Arg Arg Leu Asn Asp Glu Thr Arg Asn Arg Asp Leu Glu Thr
130 135 140

Thr Ala Gly Ile Glu Glu His Gln Ile Met Asn Arg Ala Ala Ala Met
145 150 155 160

Thr Tyr Gly Val Leu Thr Gly Ala Thr Val Lys Ile Ile Gln Asn Lys
165 170 175

Asn Asn Leu Leu Asp Tyr Ala Val Glu Glu Leu Ile Ser Val Leu Arg
180 185 190

<210> 8
<211> 192
<212> PRT
<213> Methanococcus voltae

<400> 8

Met Lys Asn Lys Val Val Val Val Thr Gly Val Pro Gly Val Gly Ser
1 5 10 15

Thr Thr Ser Ser Gln Leu Ala Met Asp Asn Leu Arg Lys Glu Gly Val
20 25 30

Asn Tyr Lys Met Val Ser Phe Gly Ser Val Met Phe Glu Val Ala Lys
35 40 45

Glu Glu Asn Leu Val Ser Asp Arg Asp Gln Met Arg Lys Met Asp Pro
50 55 60

Glu Thr Gln Lys Arg Ile Gln Lys Met Ala Gly Arg Lys Ile Ala Glu
65 70 75 80

Met Ala Lys Glu Ser Pro Val Ala Val Asp Thr His Ser Thr Val Ser
85 90 95

Thr Pro Lys Gly Tyr Leu Pro Gly Leu Pro Ser Trp Val Leu Asn Glu
100 105 110

Leu Asn Pro Asp Leu Ile Ile Val Val Glu Thr Thr Gly Asp Glu Ile
115 120 125

Leu Met Arg Arg Met Ser Asp Glu Thr Arg Val Arg Asp Leu Asp Thr
130 135 140

Ala Ser Thr Ile Glu Gln His Gln Phe Met Asn Arg Cys Ala Ala Met
145 150 155 160

Ser Tyr Gly Val Leu Thr Gly Ala Thr Val Lys Ile Val Gln Asn Arg
165 170 175

Asn Gly Leu Leu Asp Gln Ala Val Glu Glu Leu Thr Asn Val Leu Arg
180 185 190

<210> 9
<211> 195
<212> PRT
<213> Methanococcus jannaschii

<400> 9

Met Met Met Met Lys Asn Lys Val Val Val Ile Val Gly Val Pro Gly
1 5 10 15

Val Gly Ser Thr Thr Val Thr Asn Lys Ala Ile Glu Glu Leu Lys Lys
20 25 30

Glu Gly Ile Glu Tyr Lys Ile Val Asn Phe Gly Thr Val Met Phe Glu
35 40 45

Ile Ala Lys Glu Glu Gly Leu Val Glu His Arg Asp Gln Leu Arg Lys
50 55 60

Leu Pro Pro Glu Glu Gln Lys Arg Ile Gln Lys Leu Ala Gly Lys Lys
65 70 75 80

Ile Ala Glu Met Ala Lys Glu Phe Asn Ile Val Val Asp Thr His Ser
85 90 95

Thr Ile Lys Thr Pro Lys Gly Tyr Leu Pro Gly Leu Pro Ala Trp Val
100 105 110

Leu Glu Glu Leu Asn Pro Asp Ile Ile Val Leu Val Glu Ala Glu Asn
115 120 125

Asp Glu Ile Leu Met Arg Arg Leu Lys Asp Glu Thr Arg Gln Arg Asp
130 135 140

Phe Glu Ser Thr Glu Asp Ile Gly Glu His Ile Phe Met Asn Arg Cys
145 150 155 160

Ala Ala Met Thr Tyr Ala Val Leu Thr Gly Ala Thr Val Lys Ile Ile
165 170 175

Lys Asn Arg Asp Phe Leu Leu Asp Lys Ala Val Gln Glu Leu Ile Glu
180 185 190

Val Leu Lys
195

<210> 10
<211> 191
<212> PRT
<213> Methanopyrus kandleri

<400> 10

Met Gly Tyr Val Ile Val Ala Thr Gly Val Pro Gly Val Gly Ala Thr
1 5 10 15

Thr Val Thr Thr Glu Ala Val Lys Glu Leu Glu Gly Tyr Glu His Val
20 25 30

Asn Tyr Gly Asp Val Met Leu Glu Ile Ala Lys Glu Glu Gly Leu Val
35 40 45

Glu His Arg Asp Glu Ile Arg Lys Leu Pro Ala Glu Lys Gln Arg Glu
50 55 60

Ile Gln Arg Leu Ala Ala Arg Arg Ile Ala Lys Met Ala Glu Glu Lys
65 70 75 80

Glu Gly Ile Ile Val Asp Thr His Cys Thr Ile Lys Thr Pro Ala Gly
85 90 95

Tyr Leu Pro Gly Leu Pro Ile Trp Val Leu Glu Glu Leu Gln Pro Asp
100 105 110

Val Ile Val Leu Ile Glu Ala Asp Pro Asp Glu Ile Met Met Arg Arg
115 120 125

Val Lys Asp Ser Glu Glu Arg Gln Arg Asp Tyr Asp Arg Ala His Glu
130 135 140

Ile Glu Glu His Gln Lys Met Asn Arg Met Ala Ala Met Ala Tyr Ala
145 150 155 160

Ala Leu Thr Gly Ala Thr Val Lys Ile Ile Glu Asn His Asp Asp Arg
165 170 175

Leu Glu Glu Ala Val Arg Glu Phe Val Glu Thr Val Arg Ser Leu
180 185 190

<210> 11
<211> 192
<212> PRT
<213> Met